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**G4A ADT**

(56) Documents Cited

**US 5227957 A US 5119497 A**

(58) Field of Search

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(54) Communications server module.

(57) A computer system comprises a main processing unit and a disk rack having a plurality of mounting slots for receiving disk drive modules, e.g. 3.5 inch disk drive modules. A data channel interconnects the main processing unit to the disk mounting slots. At least one communications server module having substantially the same physical profile as one of the disk drive modules is located in one of the disk mounting slots. Because it fits into a standard disk drive slot, this communications server module allows more flexibility in building computer architectures.

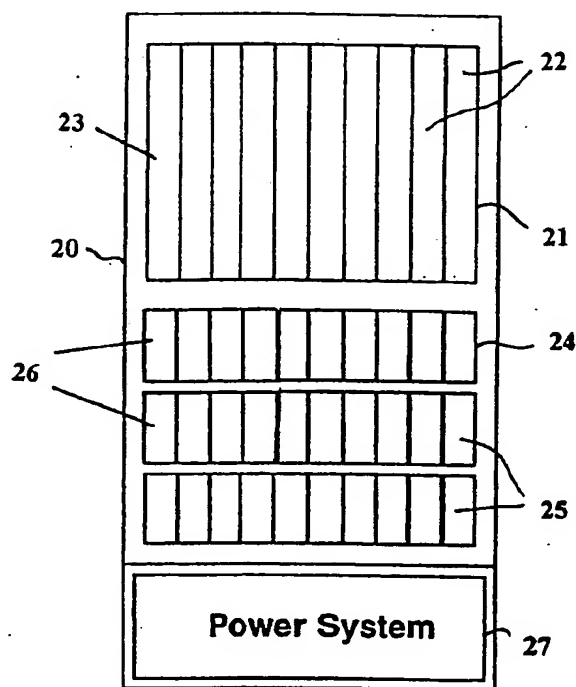
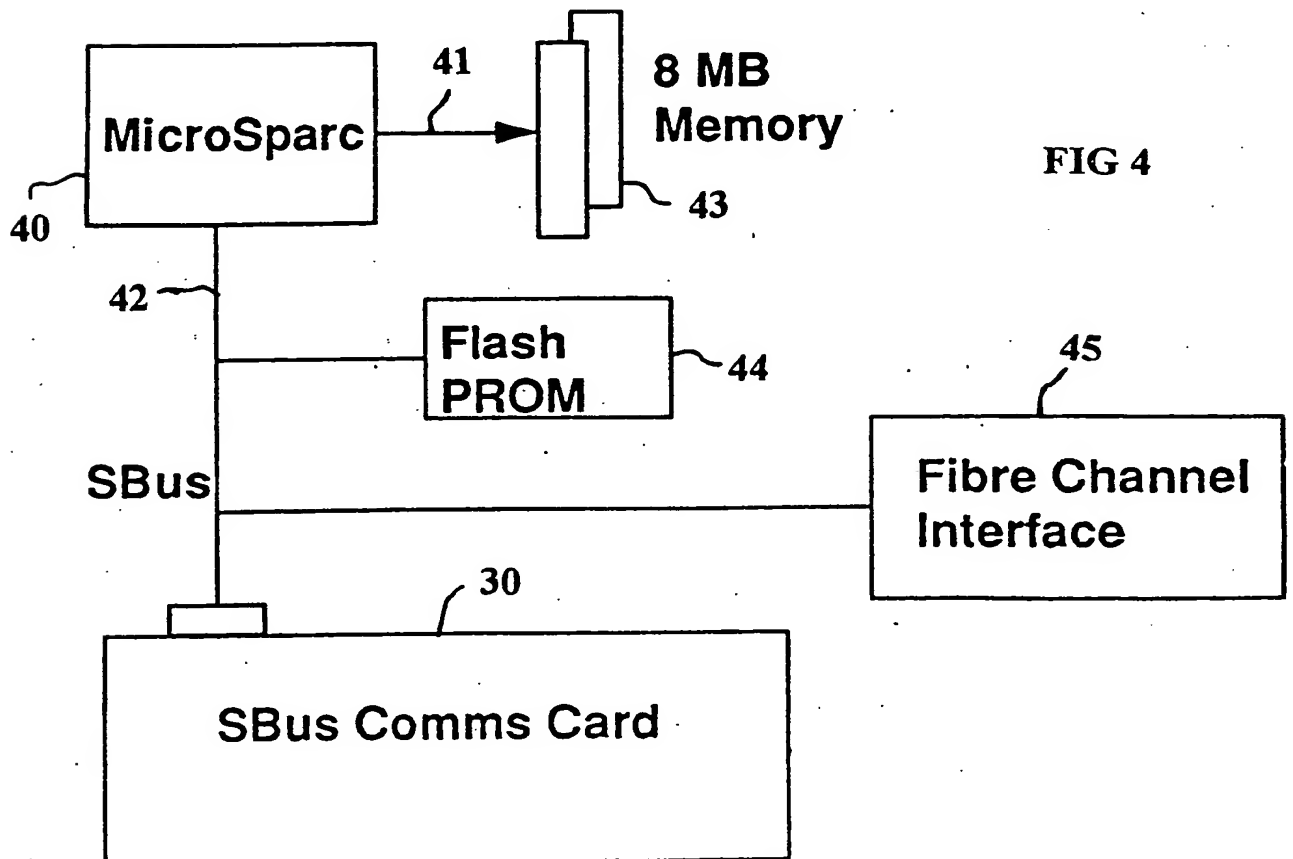
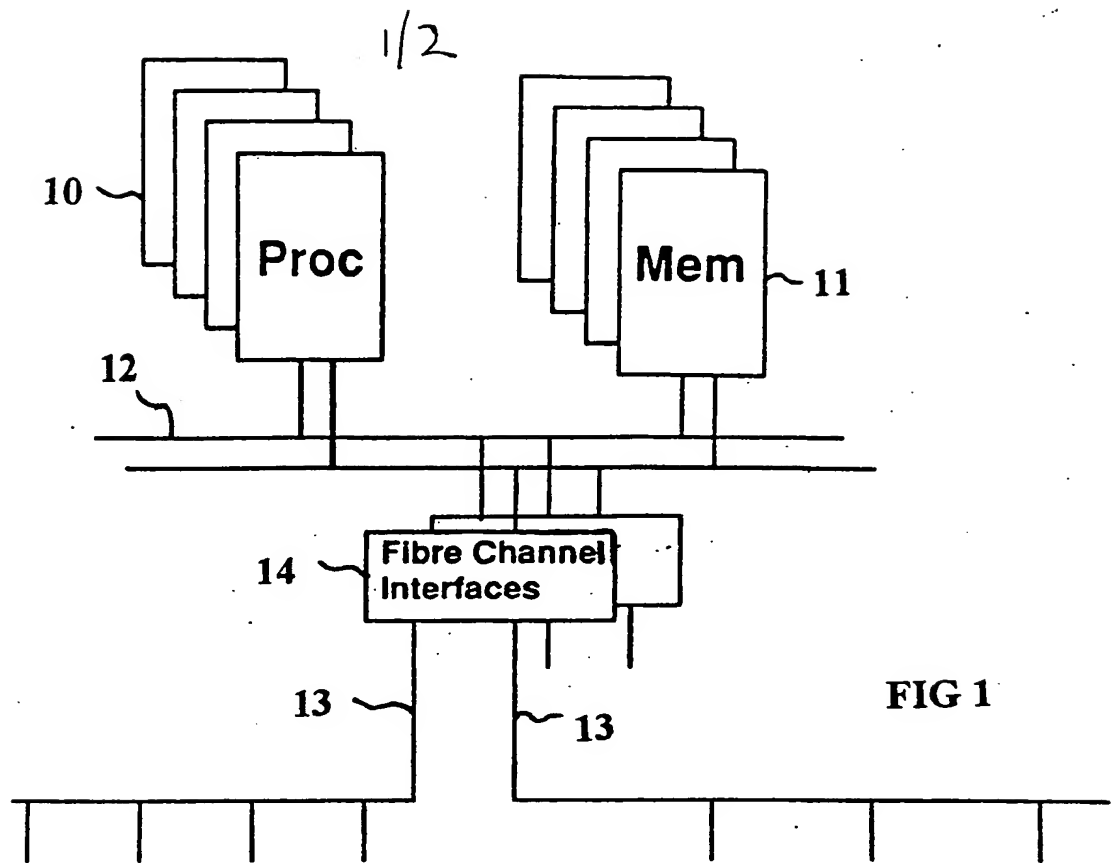


FIG 2

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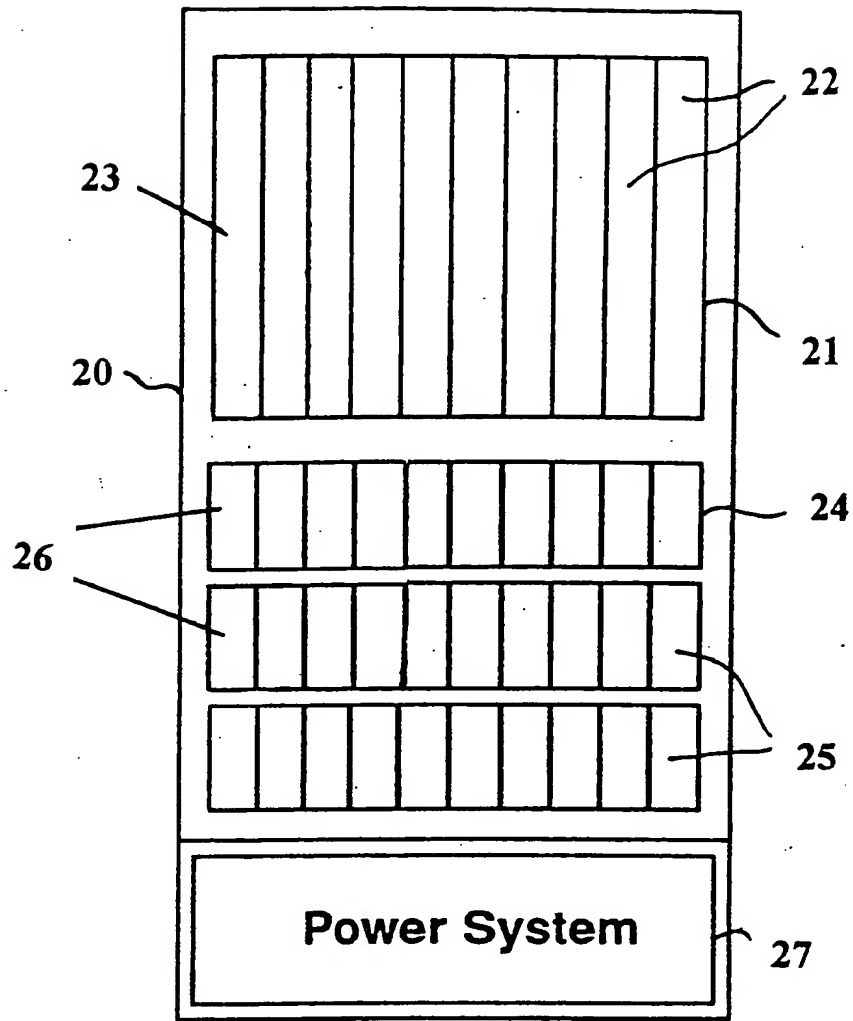
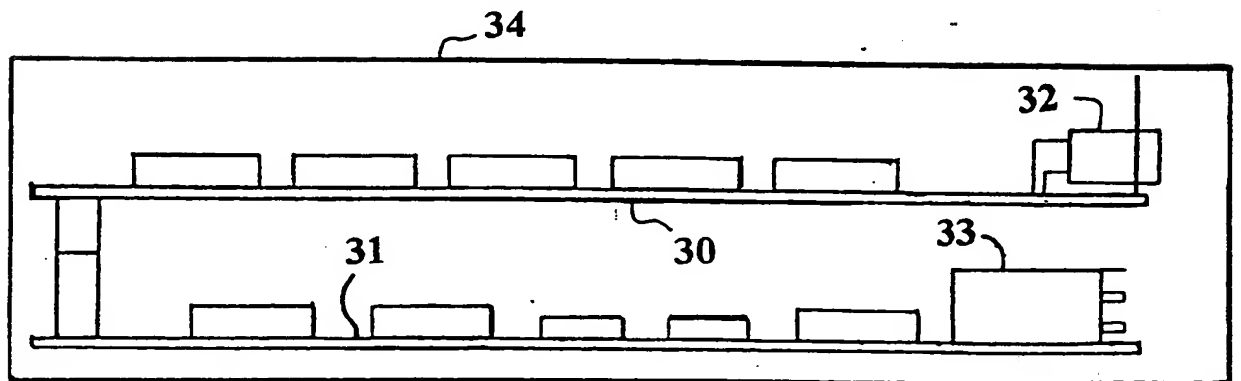


FIG 2

FIG 3



COMMUNICATIONS SERVER MODULE

Background to the Invention

This invention relates to computer systems and, more specifically, relates to a communications server module for use in such a system.

The object of the present invention is to provide a novel communications server module for use in a computer system which enables more flexible architectures to be built.

Summary of the Invention

According to the invention there is provided a computer system comprising a main processing unit, a disk rack having a plurality of mounting slots for receiving disk drive modules, and a data channel for interconnecting the main processing unit to the mounting slots, characterised by at least one communications server module having substantially the same physical profile as one of the disk drive modules and located in one of the mounting slots.

In a preferred form of the invention, the communications server module comprises a communications card for providing an interface to a communications channel, and a processor card, for controlling the communications card and providing an interface between said data channel and the communications card.

### Brief Description of the Drawings

Figure 1 is a block diagram of a computer system embodying the invention.

Figure 2 is a diagram showing the physical layout of the computer system.

Figure 3 shows a communications server module forming part of the system.

Figure 4 is a block diagram of the communications server module.

### Description of an Embodiment of the Invention

One computer system in accordance with the invention will now be described by way of example with reference to the accompanying drawings.

Referring to Figure 1, the system comprises a plurality of processing units 10 and a plurality of memory units 11, interconnected by a number of memory busses 12.

A plurality of I/O channels 13 are connected to the busses 12 by means of channel interfaces 14. In this example the channels 13 are standard Fibre Channel connections, providing a serial interface for up to 100 Megabytes/second over either copper wires or optical fibres.

Referring to Figure 2, this shows the physical layout of the computer system. The system is housed in a cabinet 20. A logic rack 21 at the top of the cabinet holds processor and memory cards 22, as well as a Fibre Channel card 23. Below this is mounted a disk rack 24, containing an array of identical mounting slots, connected to the I/O channels 13.

Each of these mounting slots can hold either a standard 3.5 inch profile disk drive unit 25, or a communications server module 26. A power supply unit 27 is located at the bottom of the cabinet.

Referring now to Figure 3, this shows one of the communications server modules 26 in more detail. The module comprises a communications card 30 and a processor card 31, packaged together as a unit to fit within a standard 3.5 inch disk drive profile 34 so that it can be plugged into one of the mounting slots of the disk rack 24.

The communications card 30 carries a connector 32 which allows it to be connected to a standard communications channel. The processor card 31 carries a connector 33 similar to that used for the disk drive units, to enable it to be coupled to one of the I/O channels 13 and to receive a power supply, in a similar manner to the disk drive units.

Referring to Figure 4, this is a block diagram showing the logical components of the communications server module in more detail.

The processor card carries a processor chip 40, having an output memory bus 41 and serial bus 42. The processor chip 40 may for example be a MicroSparc chip supplied by Texas Instruments, which provides a Sparc (scalable processor architecture) processor with built-in memory control and SBus interface. The memory bus 41 is connected to an 8 megabyte memory 43 which provides the main memory for the processor. The serial bus 42 is connected to a flash PROM 44, a channel interface 45 and to the communications card 30.

The channel interface 45 provides an interface between the serial bus 42 and the channel 13, by way of the connector 32 on the communications card. The interface 45 may for example be a standard Fibre Channel interface unit.

CLAIMS

1. A computer system comprising a main processing unit, a disk rack having a plurality of mounting slots for receiving disk drive modules, and a data channel for interconnecting the main processing unit to the mounting slots, characterised by at least one communications server module having substantially the same physical profile as one of the disk drive modules and located in one of the mounting slots.
2. A system according to Claim 1 wherein the communications server module comprises a communications card for providing an interface to a communications channel, and a processor card, for controlling the communications card and providing an interface between said data channel and the communications card.
3. A system according to Claim 1 or 2 wherein said disk drive modules are of a standard 3.5 inch disk drive profile.
4. A system according to any preceding claim wherein said data channel is a bit serial channel.
5. A computer system substantially as hereinbefore described with reference to the accompanying drawings.

Patents Act 1977  
Examiner's report to the Comptroller under Section 17  
(The Search report)

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Relevant Technical Fields

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(ii) Int Cl (Ed.5) G06F 1/16, 1/18

Search Examiner  
MR S J PROBERT

Date of completion of Search  
19 JULY 1994

Databases (see below)

- (i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-  
1-5

(ii)

Categories of documents

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| <p><b>X:</b> Document indicating lack of novelty or of inventive step.</p> <p><b>Y:</b> Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p><b>A:</b> Document indicating technological background and/or state of the art.</p> | <p><b>P:</b> Document published on or after the declared priority date but before the filing date of the present application.</p> <p><b>E:</b> Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p><b>&amp;:</b> Member of the same patent family; corresponding document.</p> |
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Category	Identity of document and relevant passages	Relevant to claim(s)
X	US 5227957 (DETERS) see Figure 1 for example	1-3 at least
X	US 5119497 (FREIGE ET AL) see Figure 9	1-4

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).